

IA due Oct 2, end of the day

Uncertainties review:

How much data to collect?
about 25 points, multiple trials

uncertainty = range/2

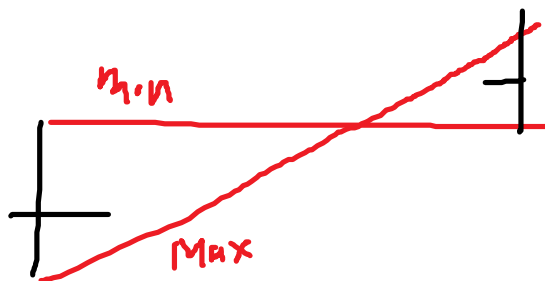
eg. 2.5, 2.7, 2.8 range is 0.3

uncertainty = 0.3/2

(mathy people - standard deviation is a better estimate but not necessary)

uncertainty bars on the graph

uncertainty in slope = max slope-min slope/2



if you don't have multiple measurements,
estimate uncertainty from the smallest division on
the device or the tolerance of the device (in the
specs).

add/subtract values add absolute uncertainty

mult/divide values add percent uncertainty

$$\text{Sqrt}(10)=3.16227766016838$$

$$\text{Sqrt}(8)=2.82842712474619$$

$$\begin{aligned} &3.16227766016838-2.82842712474619= \\ &0.33385053542219 \quad 0.33385053542219/2= \\ &0.1669252677111 \end{aligned}$$

$$\text{Sqrt}(9\pm 1) = 3\pm 0.2$$

$$1/9=0.1111$$

Handout Q12-19, 20, 22, 25, 28, 29